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December 1964

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26 Pages

PHOTOGRAPHIC INTERPRETATION REPORT



THE BLACK-CASPIAN-BALTIC-WHITE SEAS INLAND WATERWAY



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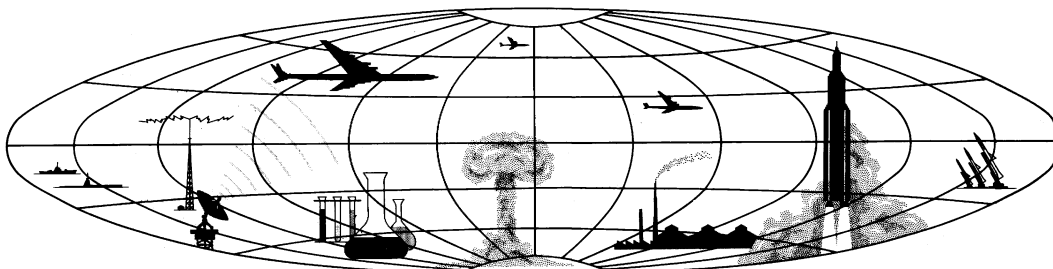


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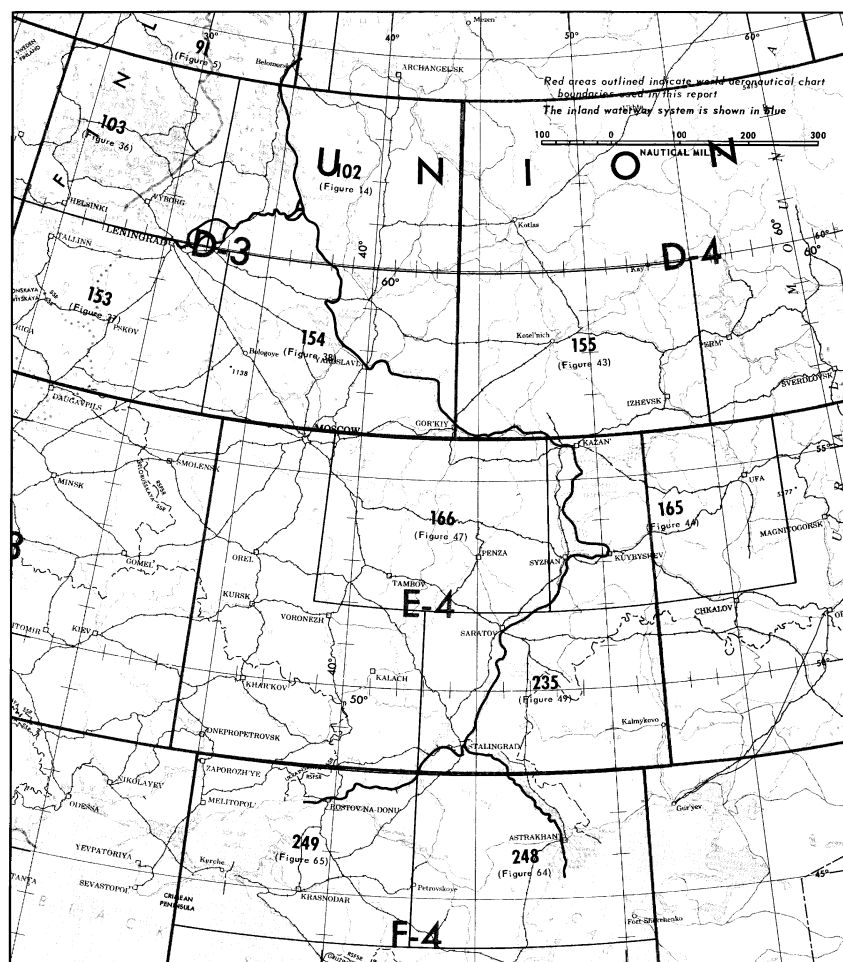


FIGURE 1. OUTLINE OF BLACK-CASPIAN-BALTIC-WHITE SEAS INLAND WATERWAY SYSTEM.

PREFACE

This report, prepared in response to the Office of Naval Intelligence (OpNav 922Y3) requirement DIAXX 64-35, presents an analysis of the capability and use of the Black-Caspian-Baltic-White Seas Inland Waterway as a means of inter-fleet transfer of naval combatant vessels, particularly submarines.

The small scale of the photography and, in many instances, obliquity precluded accurate measurement of some of the locks. However, in most cases, the measurements obtained from photography compared favorably with those in collateral literature.

For the purpose of this report, the waterway has been broken down by WAC areas with locks numbered sequentially within each WAC area.

INTRODUCTION

The Black-Caspian-Baltic-White Seas Inland Waterway is composed of a number of rivers and lakes, and three major canals. The system opens the land-locked Volga River basin to the Black, White, and Baltic seas, and provides an interconnecting waterway between these three seas and the Caspian Sea. This system, approximately 2,830 nautical miles (nm) in length, is the heart of the 61,500 nm of navigable USSR waterways.

The economic importance of an arterial transportation system of this magnitude cannot be overemphasized; the inland waterway system provides a valuable supplement to the inadequate railroad network of the Soviet Union. Militarily, the greatest value of the waterway is that it makes possible the transfer of most combatant ships, up to and including those of destroyer size, from one fleet operating area to another with a minimum of foreign observation.

THE BLACK-CASPIAN-BALTIC-WHITE SEAS INLAND WATERWAY

The entire Black-Caspian-Baltic-White Seas Inland Waterway was observed on cloud-free or nearly cloud-free photography. Missions used were flown during the summer of 1964 and provided coverage during the peak navigation season. No serious traffic congestion was observed at any point, although moderate concentrations of

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vessels were present at all the major river ports and at lock complexes. These concentrations do not appear to hinder the smooth flow of through traffic however.

Vertical clearance under bridges does not appear to be a limiting factor for use of the waterway by vessels up to destroyer size.

There are 49 operational locks on the waterway. As with most inland waterways the size of the locks is the most critical factor in establishing the maximum size limit for vessels using the system. The locks in the Black-Caspian-Baltic-White Seas Inland Waterway range in length from 470 to 1,085 feet and in width from 50 to 100 feet. The dimensions of individual locks are given in the captions accompanying the photographs of the locks.

Two locks (102-20 and 102-21) on the old Beloye Lake side canal are still visible on photography. They will be inundated, however, by the rising waters of the Cherepovets Reservoir and are no longer considered operational (Fig-

ures 34 and 35).

Lock number 166-01 is in an early stage of construction and will probably not be operational before the 1966 navigation season (Figure 48).

Water depth varies throughout the waterway, with the shallowest points probably being the locks of the Belomorsko-Baltiyskiy Canal, which are reported to have a minimum depth of approximately 11.5 feet. This means that submarines, patrol craft, and most classes of destroyers can be moved on the waterway; however, all but the smallest of these would require lightening, pontooning, and/or transporter docks.

All coverage of the waterway on

was searched for evidence of submarines and/or other naval vessels being moved through the waterway. Submarines were observed at Gorkiy, Lake Ladoga, and Zelenodolsk, but no evidence of naval vessels transiting

the waterway was observed.

Significant naval shore facilities on the waterway are the Priozersk Area Motor Torpedo Boat Base, Gorkiy Shipyard Heavy Equipment Plant, and Zelenodolsk Shipyard Number 340. Vessel counts at each were as follows:

Priozersk Area Motor Torpedo Boat Base (on Lake Ladoga) -- 1 probable W/R-class submarine, 1 probable Petya-class PCE, 1 possible Poti-class PC, 1 possible Kronshtadt-class PC, and at least 20 smaller patrol craft. This is probably a training base for anti-submarine warfare (Figures 2 and 36).

Gorkiy Shipyard Heavy Equipment Plant -- 2 J-class submarines, 1 possible submarine, and numerous river craft (Figures 3 and 38).

Zelenodolsk Shipyard Number 340 -- 1 possible M-V-class submarine, 2 Kronshtadt-class PC, 7 Poti-class PC, and at least 15 smaller patrol craft (Figures 4 and 44).

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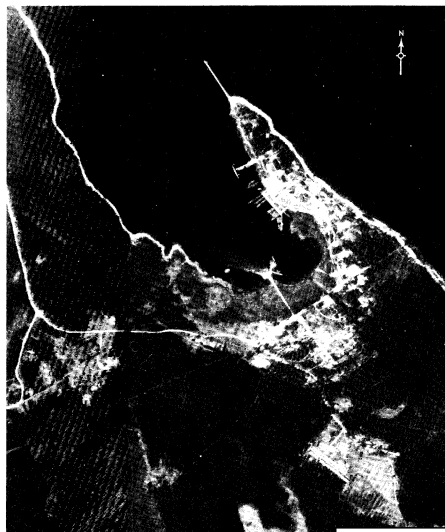


FIGURE 2. PRIOZERSK AREA MOTOR TORPEDO BOAT BASE, on west shore of Lake Ladoga, 15.5 nm SE of Priozersk, at 60-50N 030-28E.



FIGURE 3. GORKIY SHIPYARD HEAVY EQUIPMENT PLANT, at 56-21N 046-52E.



FIGURE 4. ZELENODOLSK SHIPYARD NUMBER 340, at 55-50N 048-30E.

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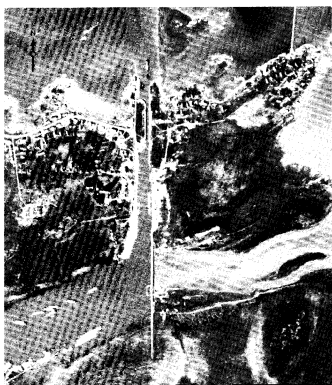


FIGURE 6. LOCK 091-01, 1 nm SE of Belomorsk at 64-31-25N 034-48-25E. A single-chamber lock, 470 by 55 ft, at the Belomorsk-Baltiyskiy Canal entrance to the White Sea. This is the shortest lock in the entire Black-Caspian-Baltic-White Sea Inland Waterway.

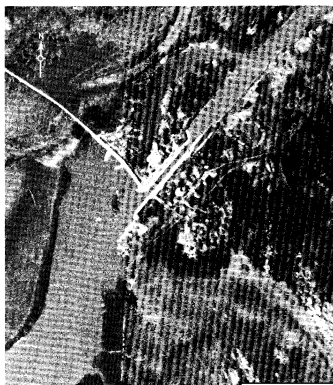


FIGURE 7. LOCK 091-02, 3 nm SSW of Belomorsk at 64-28-40N 034-44-50E. A single-chamber lock, 485 by 55 ft, on the Belomorsk-Baltiyskiy Canal.



FIGURE 8. LOCK 091-03, 3.4 nm SW of Belomorsk at 64-28-30N 034-41-40E. A single-chamber lock, 490 by 55 ft, on the Belomorsk-Baltiyskiy Canal.



FIGURE 9. LOCK 091-04, 4 nm SW of Belomorsk at 64-28-25N 034-39-30E. A double-chamber lock, each chamber 550 by 55 ft, on the Belomorsk-Baltiyskiy Canal.



FIGURE 10. LOCK 091-05, 23 nm SW of Belomorsk at 64-25-40N 034-30-00E. A double-chamber lock, each chamber 510 by 60 ft, on the Belomorsk-Baltiyskiy Canal.



FIGURE 11. LOCK 091-06, 24 nm SW of Belomorsk at 64-24-55N 034-29-30E. A double-chamber lock, each chamber 500 by 60 ft, on the Belomorsk-Baltiyskiy Canal.



FIGURE 12. LOCK 091-07, 1.3 nm SE of Letnerenchenskiy at 64-15-50N 034-24-00E. A double-chamber lock, each chamber 495 by 55 ft, on the Belomorsk-Baltiyskiy Canal.



FIGURE 13. LOCK 091-08, 3.4 nm SSW of Letnerenchenskiy at 64-12-45N 034-20-00E. A single-chamber lock 540 by 60 ft, on the Belomorsk-Baltiyskiy Canal.

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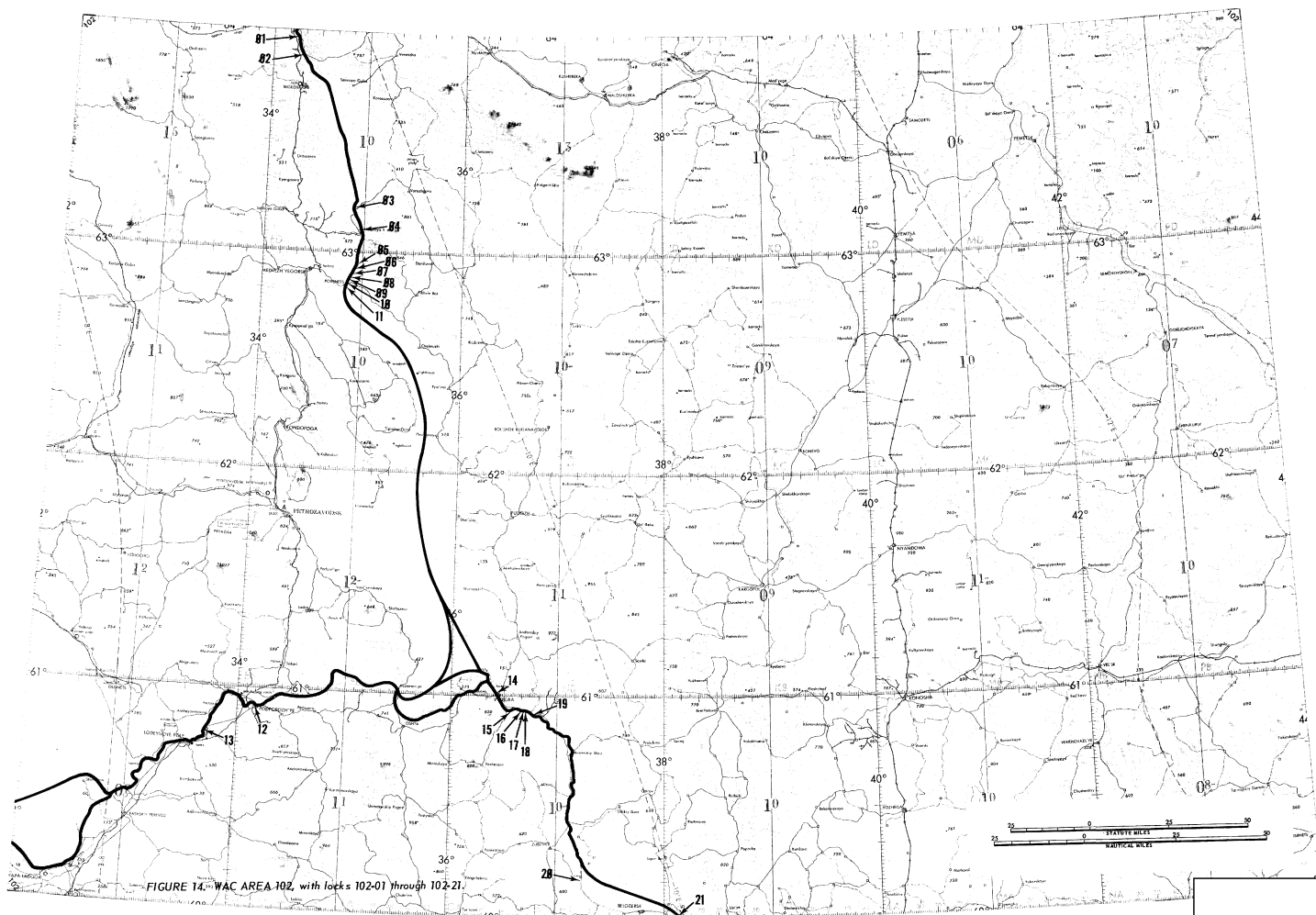
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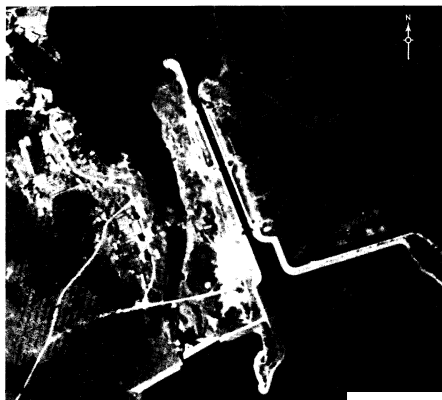


FIGURE 15. LOCK 102-01, 13 nm NNW of Segezha at 63-57-20N 034-15-20E. A double-chamber lock, each chamber 530 by 60 ft, on the Belomorsko-Baltiyskiy Canal. (Mission

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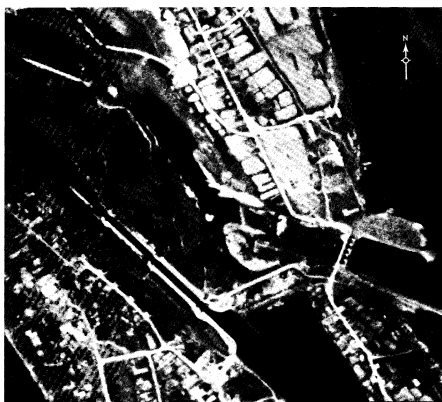


FIGURE 16. LOCK 102-02, 8.5 nm north of Segezha at 63-52-45N 034-19-00E. A double-chamber lock, each chamber 550 by 65 ft, on the Belomorsko-Baltiyskiy Canal. (Mission

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FIGURE 17. LOCK 102-03, 20.5 nm north of Povenets at 63-11-30N 034-53-00E. A single-chamber lock, 495 by 60 ft, on the Belomorsko-Baltiyskiy Canal.

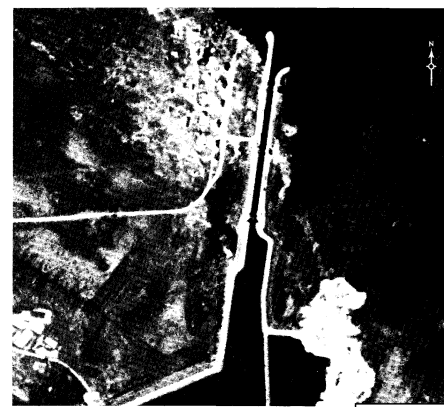


FIGURE 18. LOCK 102-04, 15.3 nm NNE of Povenets at 63-05-40N 034-58-40E. A double-chamber lock, each chamber 550 by 55 ft, on the Belomorsko-Baltiyskiy Canal.

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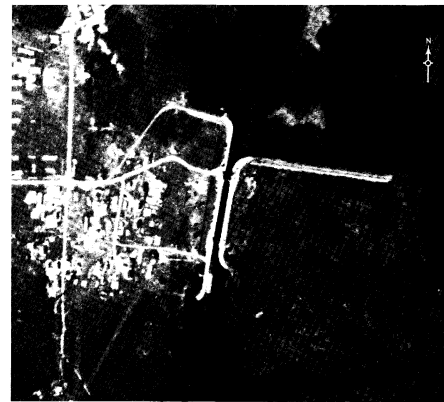


FIGURE 19. LOCK 102-05, 4.5 nm NNE of Povenets at 62-55-55N 034-54-10E. A single-chamber lock, 510 by 60 ft, on Belomorsko-Baltiyskiy Canal.

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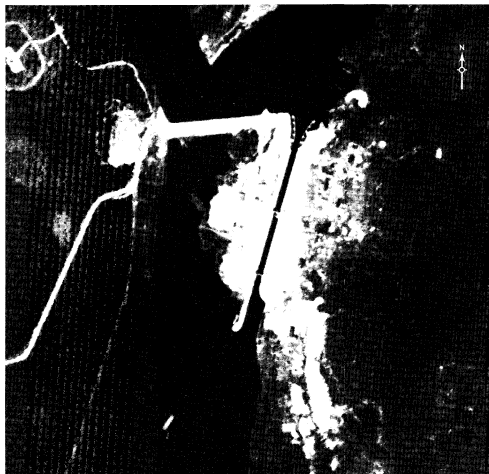


FIGURE 20. LOCK 102-06, 4 nm NNE of Povenets at 62-54-30N 034-53-40E. A double-chamber lock, each chamber 505 by 55 ft, on the Belomorsko-Baltiyskiy Canal.



FIGURE 21. LOCK 102-07, 2.2 nm NNE of Povenets at 62-52-40N 034-52-00E. A double-chamber lock, each chamber 505 by 50 ft, on the Belomorsko-Baltiyskiy Canal.

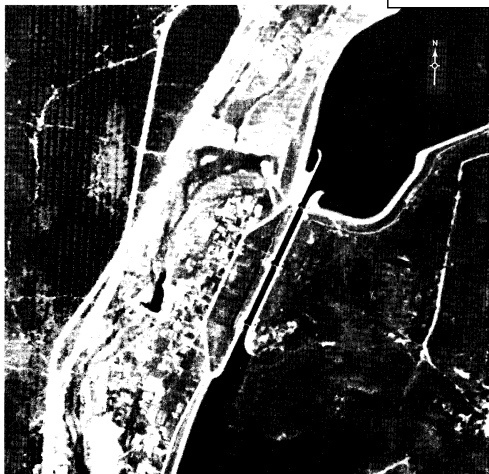


FIGURE 22. LOCK 102-08, 1.3 nm NNE of Povenets at 62-52-00N 034-51-00E. A double-chamber lock, each chamber 505 by 55 ft, on the Belomorsko-Baltiyskiy Canal.



FIGURE 23. LOCK 102-09, 0.8 nm NNE of Povenets at 62-51-30N 034-50-40E. A double-chamber lock, each chamber 500 by 55 ft, on the Belomorsko-Baltiyskiy Canal.

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FIGURE 24. LOCK 102-10, east edge of Povenets at 62-50-50N 034-50-30E. A double-chamber lock, each chamber 505 by 55 ft, on the Belomorsko-Baltiyskiy Canal.

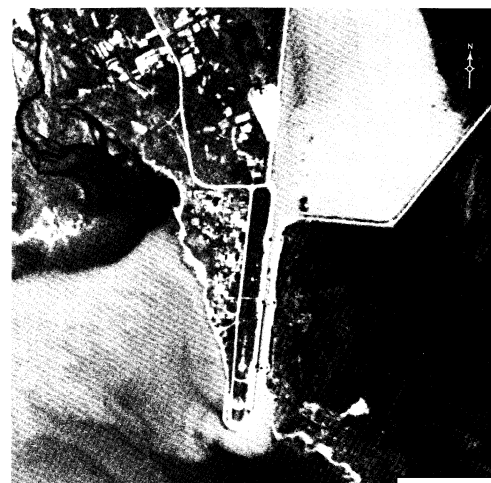


FIGURE 25. LOCK 102-11, 1 nm SE of Povenets at 62-50-00N 034-50-15E. A double-chamber lock, each chamber 510 by 50 ft, on the Belomorsko-Baltiyskiy Canal.

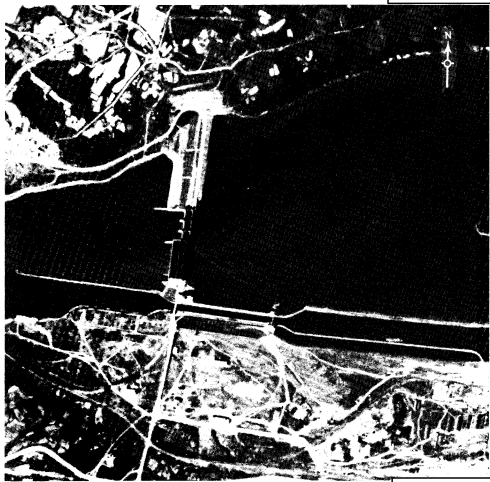


FIGURE 26. LOCK 102-12, north edge of Podporozhye at 60-55-00N 034-11-40E. A single-chamber lock 1,020 by 70 ft, on the Svir River.



FIGURE 27. LOCK 102-13, NW edge of Svirstroy at 60-48-02N 033-42-40E. A single-chamber lock 735 by 60 ft, on the Svir River.

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FIGURE 28. LOCK 102-14, NW edge of Vytegra at 61-00-30N 036-26-00E. A single-chamber lock, 970 by 65 ft, on the Volga-Baltic Canal (Vytegra River). Note also abandoned lock on former Martinsky Canal.

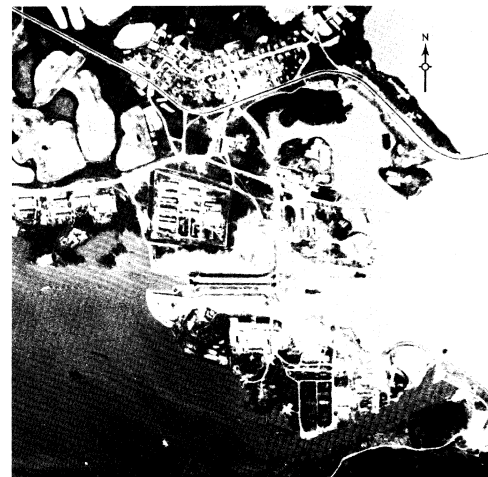


FIGURE 29. LOCK 102-15, 5.2 nm SE of Vytegra at 60-56-30N 036-34-10E. A single-chamber lock, 960 by 60 ft, on the Volga-Baltic Canal (Vytegra River).

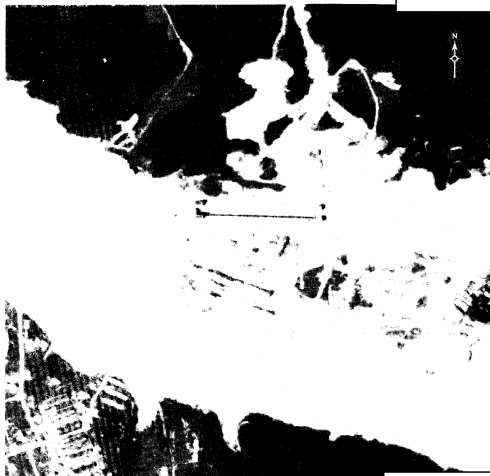


FIGURE 30. LOCK 102-16, 7.5 nm SE of Vytegra at 60-56-20N 036-39-50E. A single-chamber lock, 950 by 70 ft, on the Volga-Baltic Canal (Vytegra River).

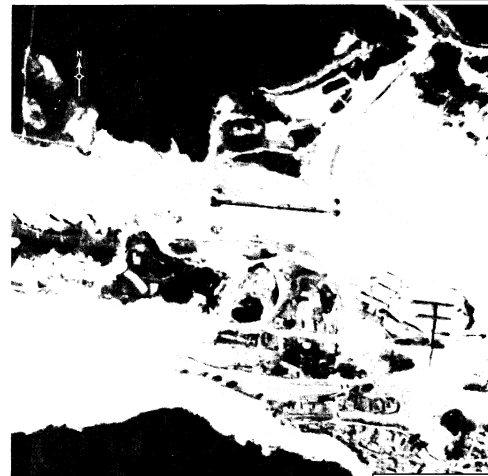


FIGURE 31. LOCK 102-17, 8.2 nm SE of Vytegra at 60-56-15N 036-41-30E. A single-chamber lock, 965 by 70 ft, on the Volga-Baltic Canal (Vytegra River).

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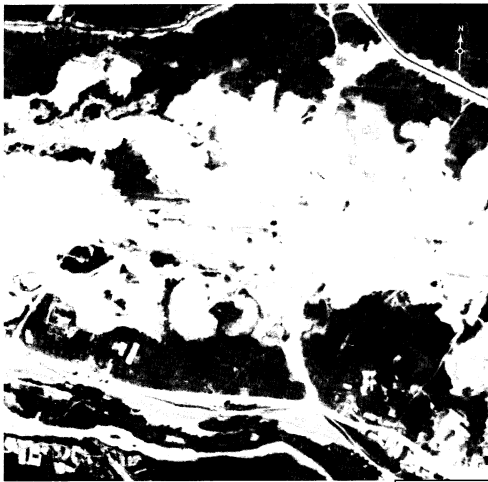


FIGURE 32. LOCK 102-18, 8.8 nm SE of Vytegra at 60-56-05N 036-43-00E. A single-chamber lock, 960 by 70 ft, on the Volga-Baltic Canal (Vytegra River).

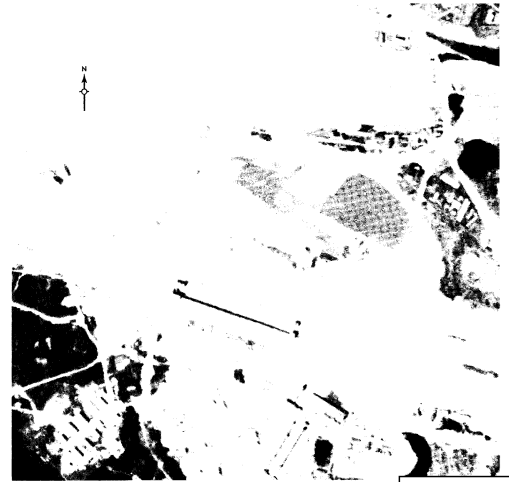


FIGURE 33. LOCK 102-19, 11.5 nm SE of Vytegra at 60-54-30N 036-47-25E. A single-chamber lock, 970 by 65 ft, on the Volga-Baltic Canal (Vytegra River).



FIGURE 34. LOCK 102-20, 18.5 nm NW of Belozersk at 60-10-25N 037-13-40E. A lock on the former Beloye Lake side canal which will be inundated by rising waters of the Cherepovets Reservoir.



FIGURE 35. LOCK 102-21, 9.8 nm ESE of Belozersk at 60-01-15N 038-06-40E. A lock at the lower end of the former Beloye Lake side canal which will be inundated by the rising waters of the Cherepovets Reservoir.

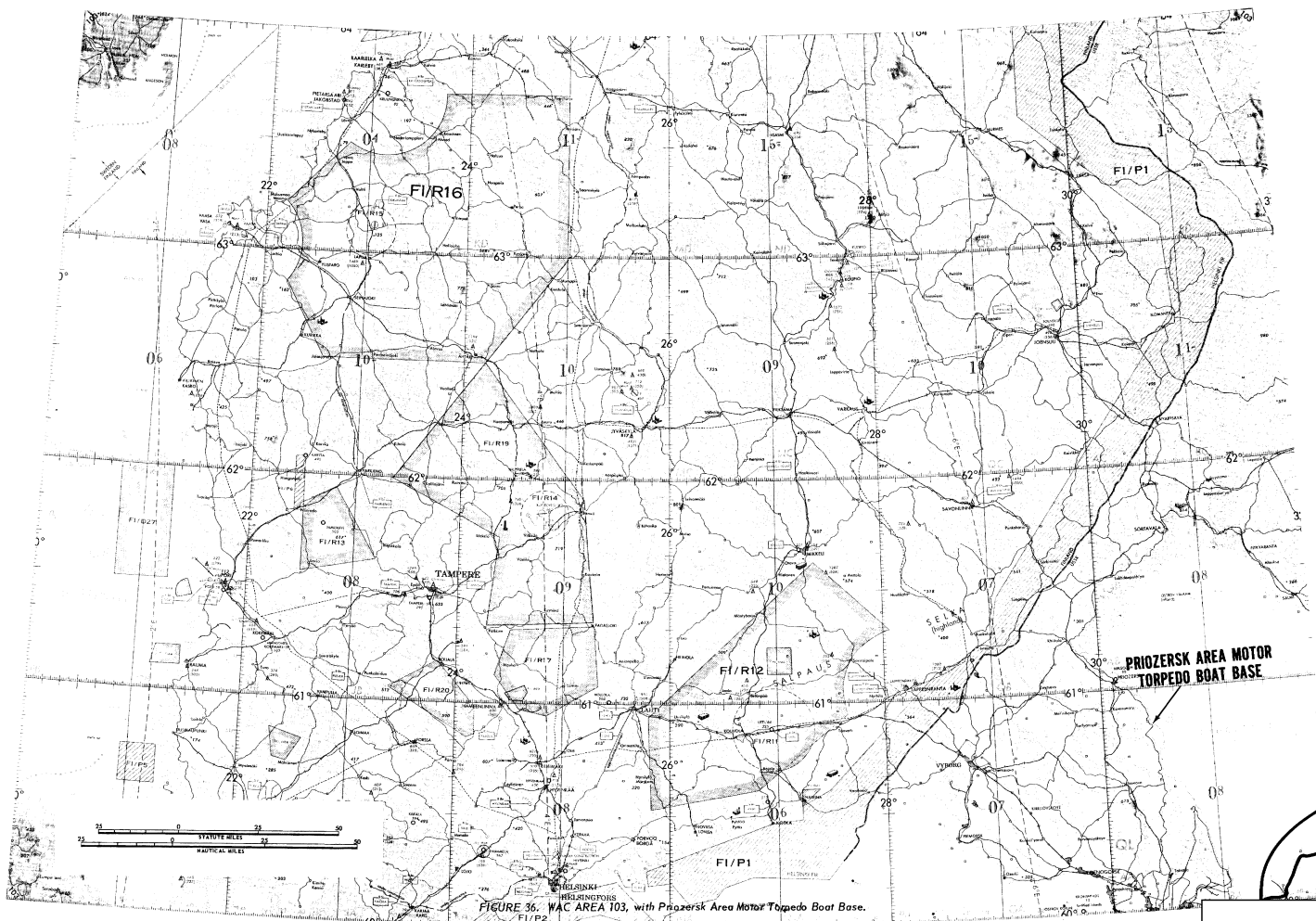
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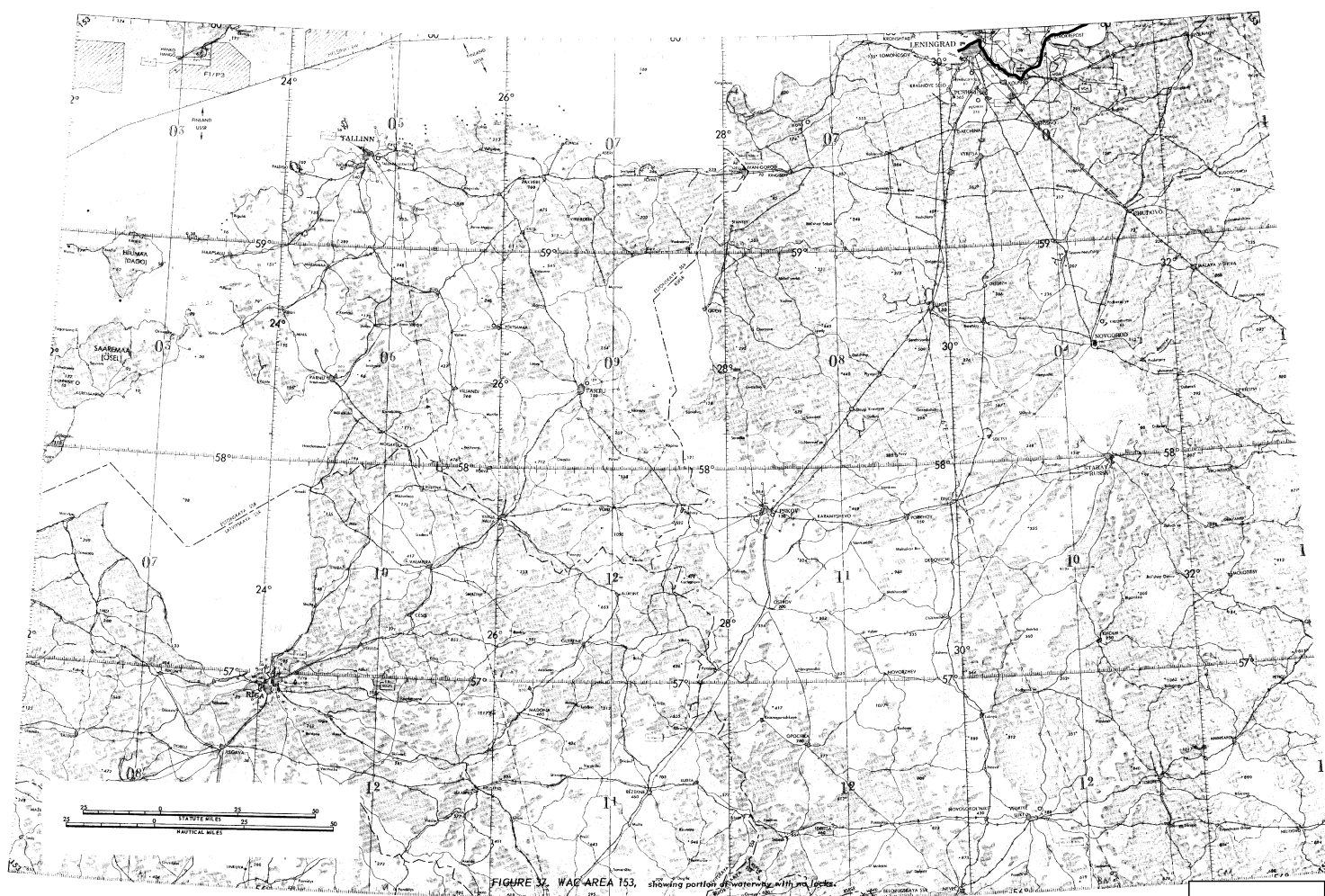
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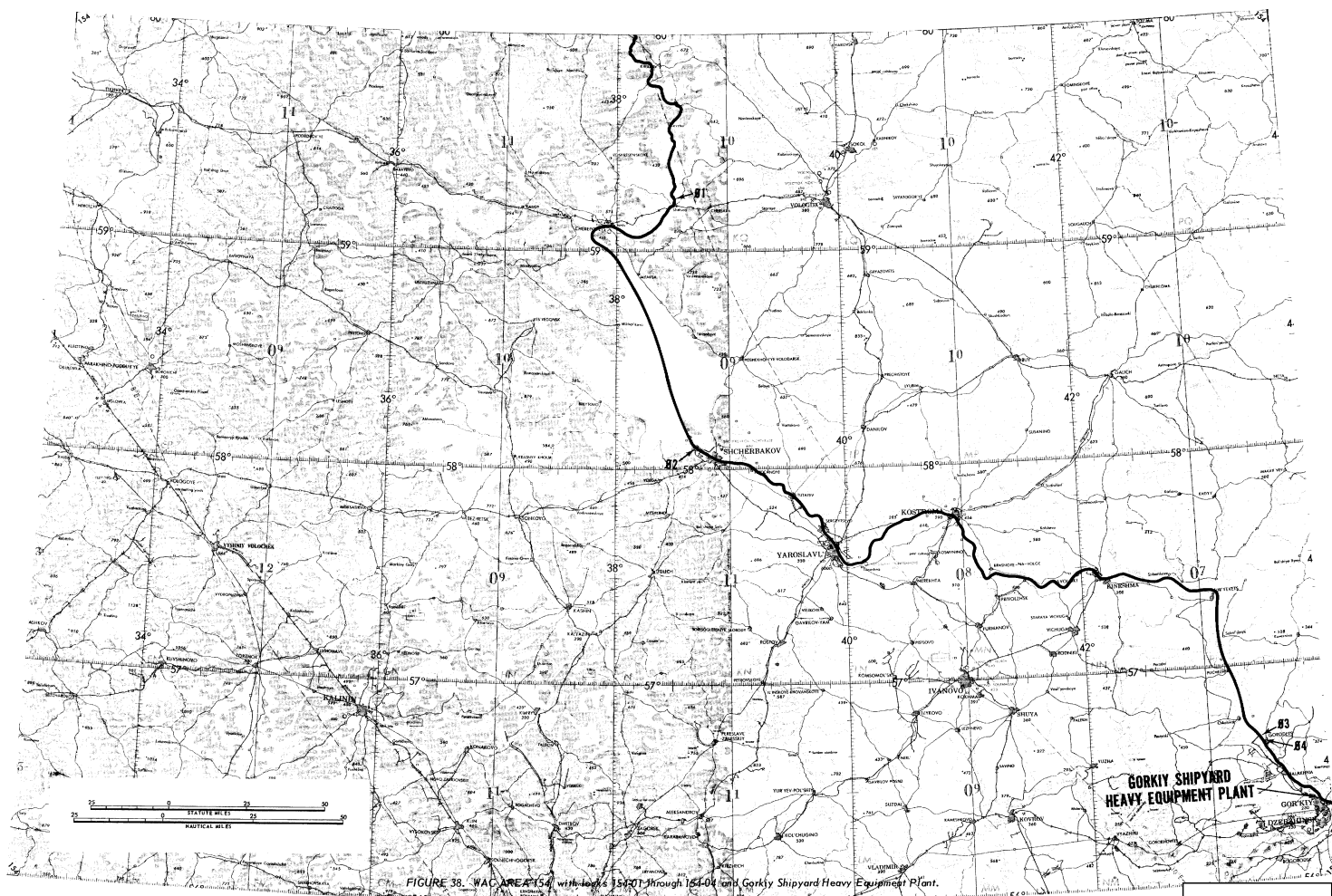
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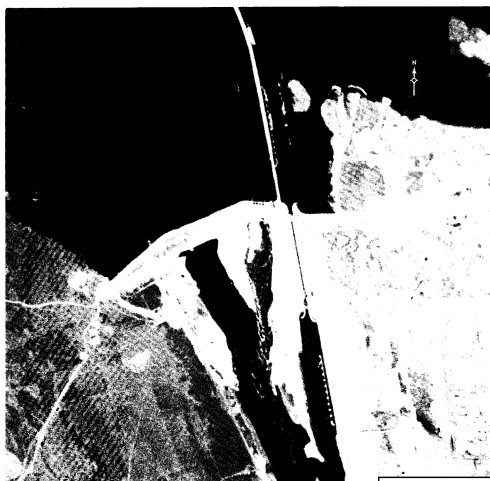


FIGURE 39. LOCK 154-01, 18.8 nm ENE of Cherepovets at 59-13-50N 038-29-30E. A single-chamber lock, 1,085 by approximately 50 ft, at the mouth of the Cherepovets Reservoir on the Sheksna River. (Mission



FIGURE 40. LOCK 154-02, 5.5 nm NW of Rybinsk at 58-05-50N 038-42-40E. Parallel single-chamber locks, each chamber 1,015 by 90 ft, at the mouth of the Rybinskoye Reservoir on the Volga River.

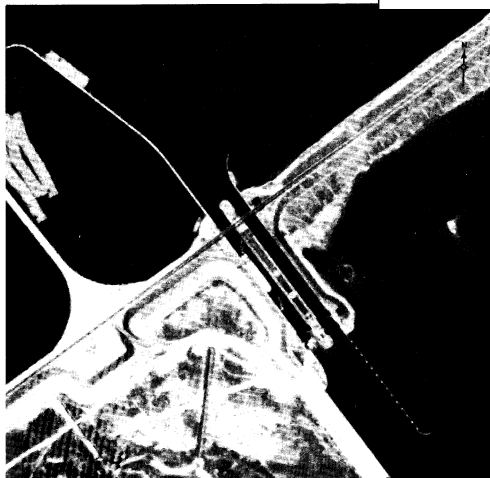


FIGURE 41. LOCK 154-03, 2 nm NW of Gorodets at 56-40-30N 043-24-50E. Parallel single-chamber locks, each chamber 1,045 by 100 ft, at the mouth of the Gorkovskoye Reservoir on the Volga River. (Mission

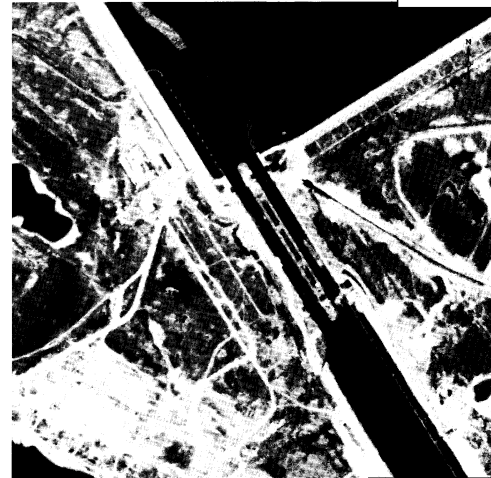


FIGURE 42. LOCK 154-04, NW edge of Gorodets at 56-39-40N 043-26-30E. Parallel single-chamber locks, each chamber 1,050 by 95 ft, on the Volga River.

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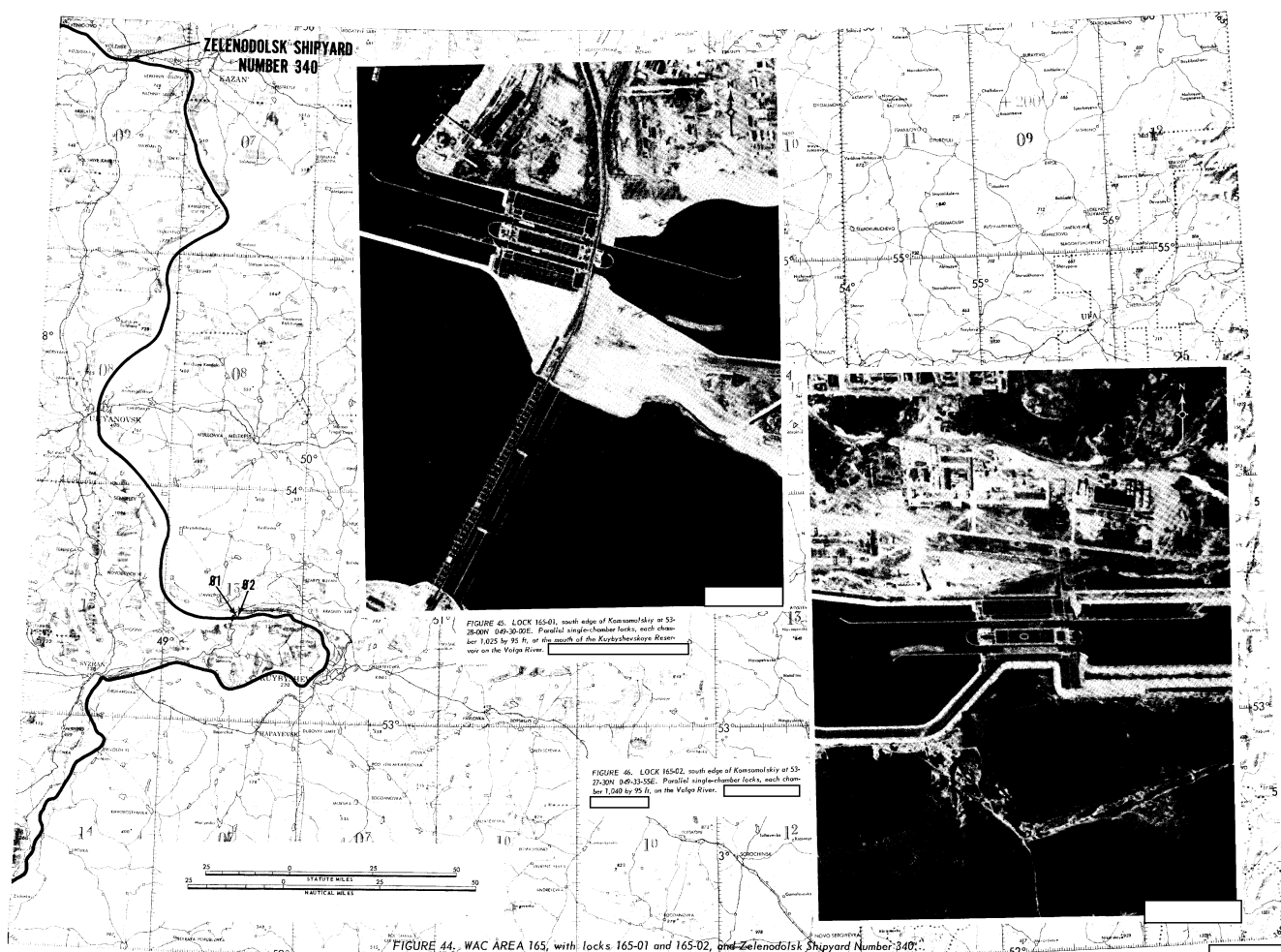
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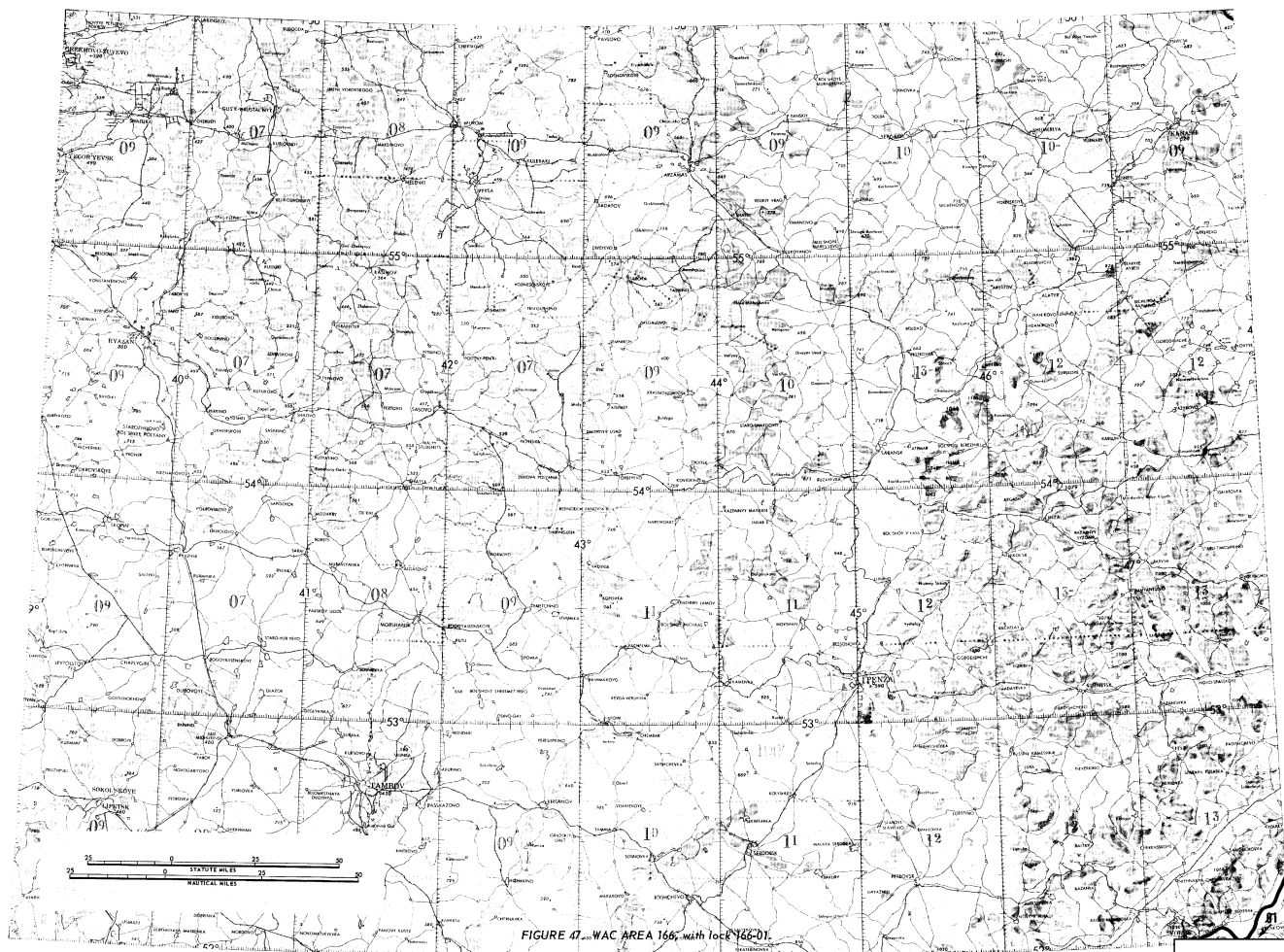
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FIGURE 48. LOCK 166-01, at Balakovo 52-02N 047-47E. Hydroelectric power plant, dam, and navigation locks under construction. (Mis-

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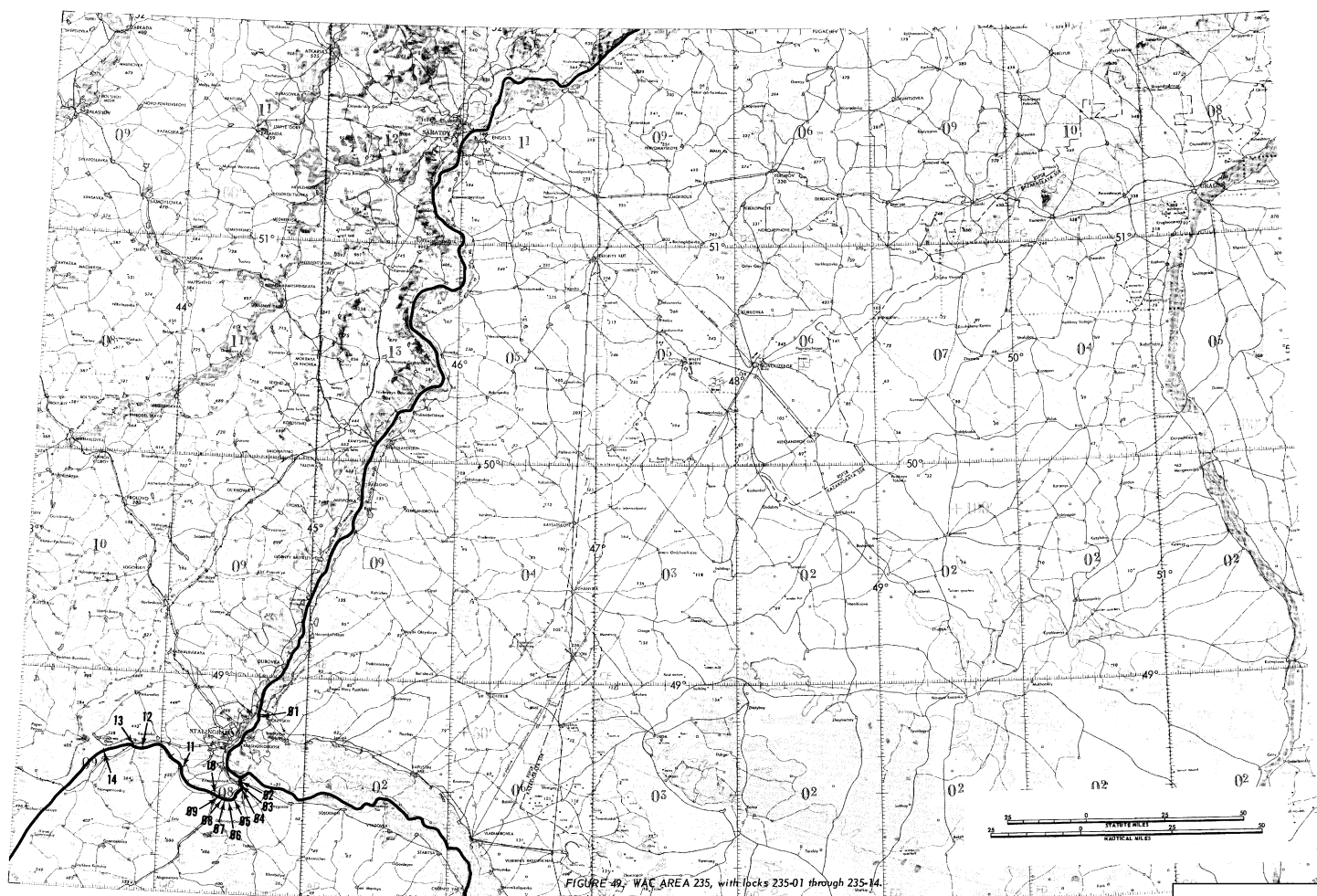


FIGURE 49. WAC AREA 235, with locks 235-01 through 235-14.

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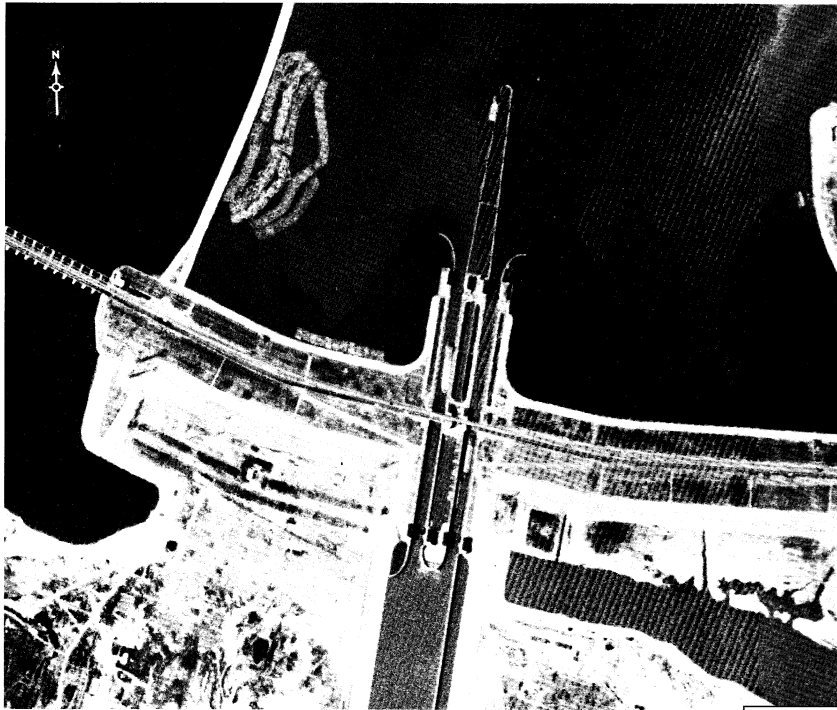


FIGURE 50. LOCK 235-01, 2.5 nm WNW of Volzhskiy at 48-49-10N 044-41-50E. Parallel double-chamber locks, each chamber 1,080 by 95 ft, at the mouth of the Volgograd Reservoir on the Volga River.



FIGURE 51. LOCK 235-02, north edge of Krasnoarmeysk at 48-31-10N 044-33-08E. A single-chamber lock, 565 by 70 ft, at the east end of the Volga-Don Canal.

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FIGURE 52. LOCK 235-03, center of Krasnoarmeysk at 48-25-04N 044-33-30E. A single-chamber lock, 615 by 65 ft., on the Volga-Dan Canal.

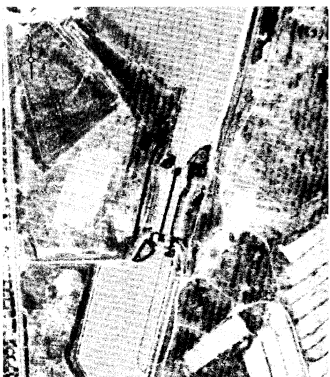


FIGURE 53. LOCK 235-04, south edge of Krasnoarmeysk at 48-25-39N 044-33-23E. A single-chamber lock, 600 by 60 ft., on the Volga-Dan Canal.



FIGURE 54. LOCK 235-05, 5 nm SSW of Krasnoarmeysk at 48-25-46N 044-30-40E. A single-chamber lock, 605 by 55 ft., on the Volga-Dan Canal.

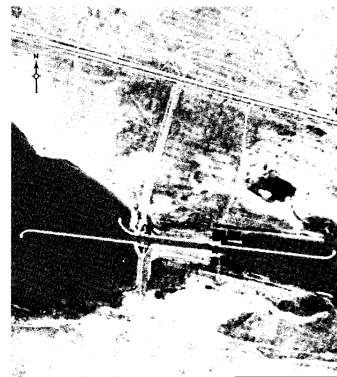


FIGURE 55. LOCK 235-06, 5.5 nm SSW of Krasnoarmeysk at 48-25-27N 044-29-35E. A single-chamber lock, 540 by 60 ft., on the Volga-Dan Canal.

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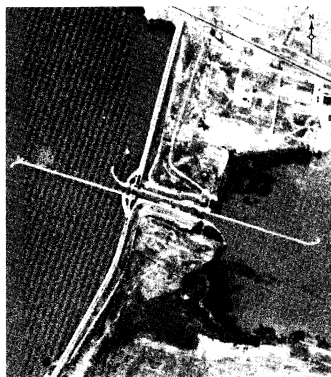


FIGURE 56. LOCK 235-07, 6.2 nm SW of Krasnoarmeysk at 48-25-51N 044-27-18E. A single-chamber lock, 550 by 60 ft., on the Volga-Dan Canal.

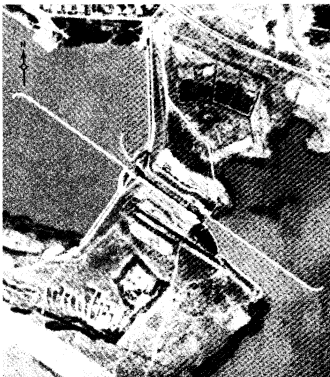


FIGURE 57. LOCK 235-08, 6.3 nm SW of Krasnoarmeysk at 48-26-10N 044-26-14E. A single-chamber lock, 545 by 65 ft., on the Volga-Dan Canal.

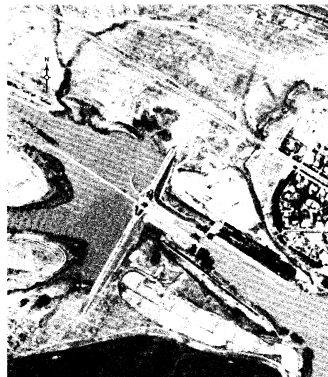


FIGURE 58. LOCK 235-09, 6.6 nm SW of Krasnoarmeysk at 48-26-35N 044-25-28E. A single-chamber lock, 590 by 60 ft., on the Volga-Dan Canal.

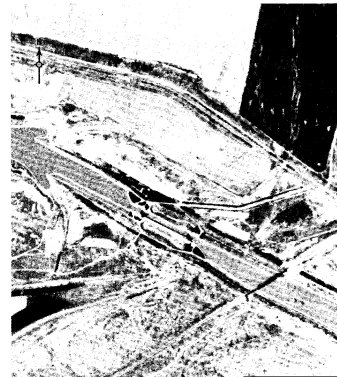


FIGURE 59. LOCK 235-10, 6.8 nm SW of Krasnoarmeysk at 48-26-57N 044-24-36E. A single-chamber lock, 550 by 65 ft., on the Volga-Dan Canal.

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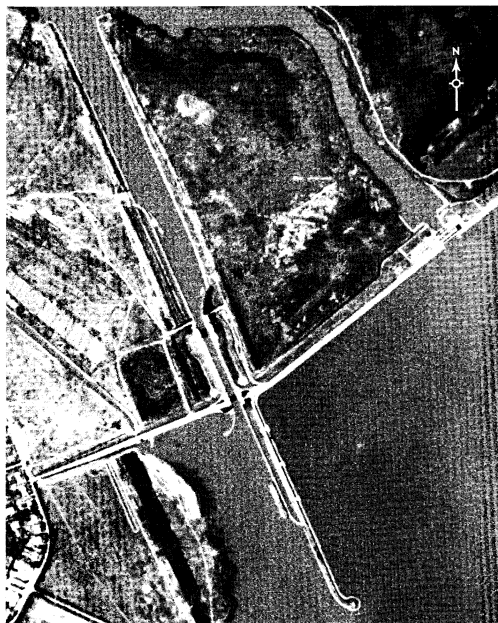


FIGURE 60. LOCK 235-11, 16.2 nm WNW of Krasnoarmeysk at 48-34+22N 044-09-30E. A single-chamber lock, 595 by 60 ft, on the Volga-Dan Canal.

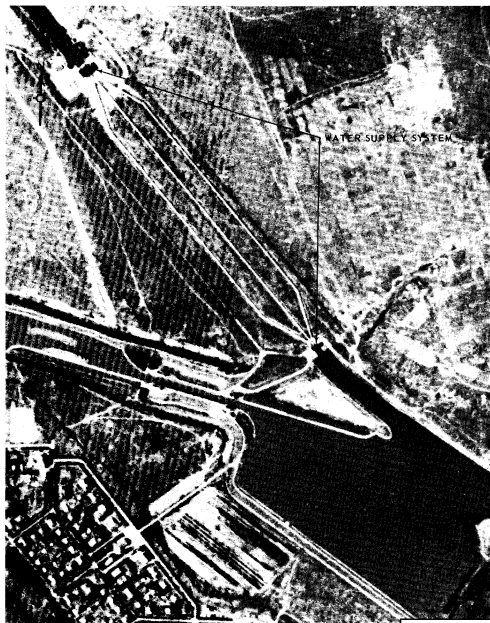


FIGURE 61. LOCK 235-12, 1.4 nm ESE of Marinovka at 48-39-56N 043-52-07E. A single-chamber lock, 560 by 60 ft, on the Volga-Dan Canal. Note the pipeline system supplying water to the canal from the Rassoshka River approximately 1 nm north.



FIGURE 62. LOCK 235-13, 1.6 nm WSW of Marinovka at 48-39-59N 043-47-43E. A single-chamber lock, 555 by 65 ft, at the west end of the Volga-Dan Canal.

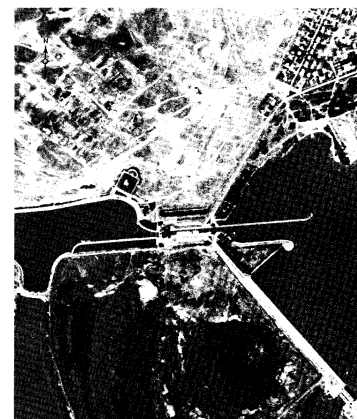


FIGURE 63. LOCK 235-14, SW edge of Ilyevka at 48-38-24N 043-35-58E. A single-chamber lock, 610 by 65 ft, at the mouth of the Karpovskoye Reservoir.

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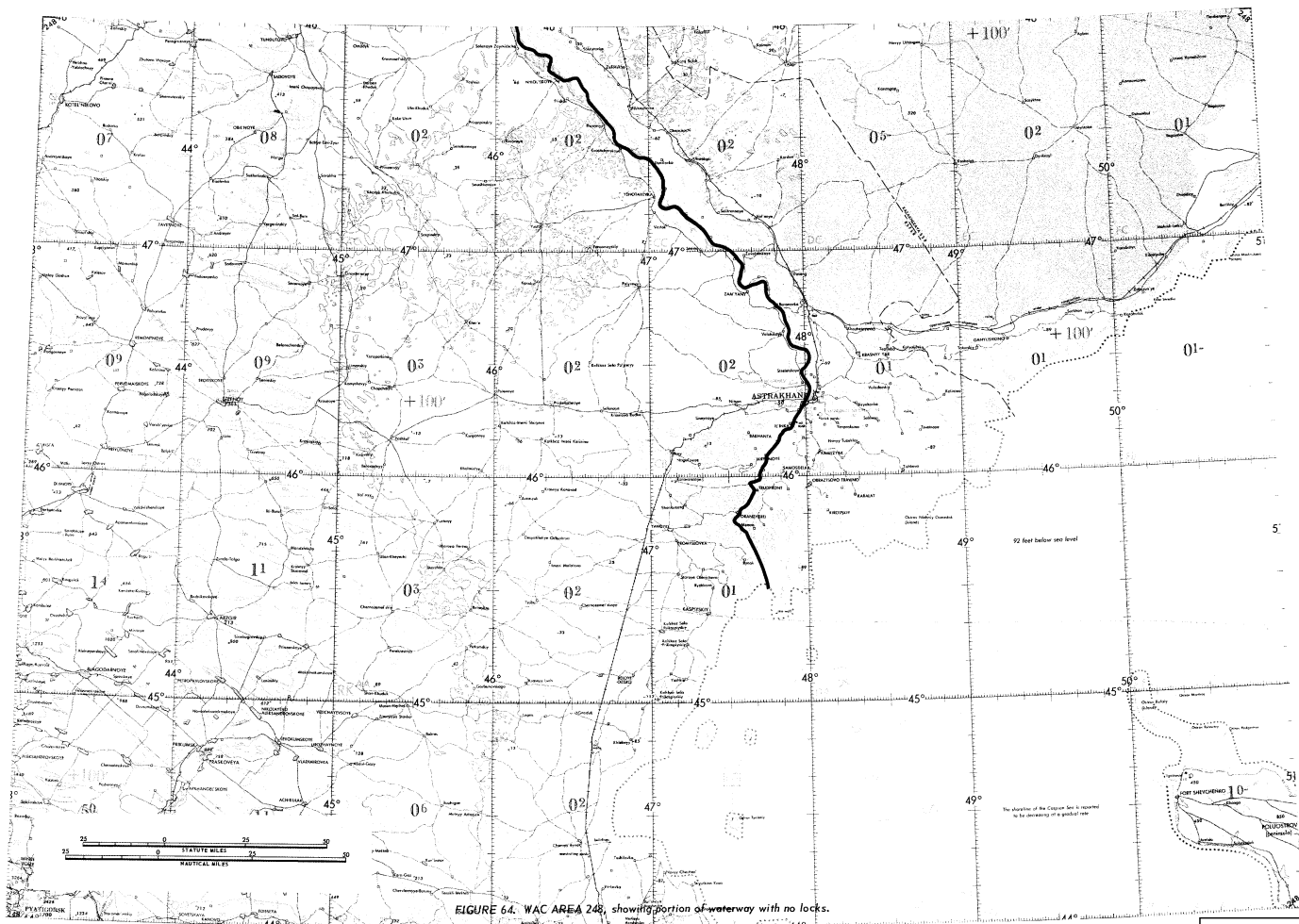
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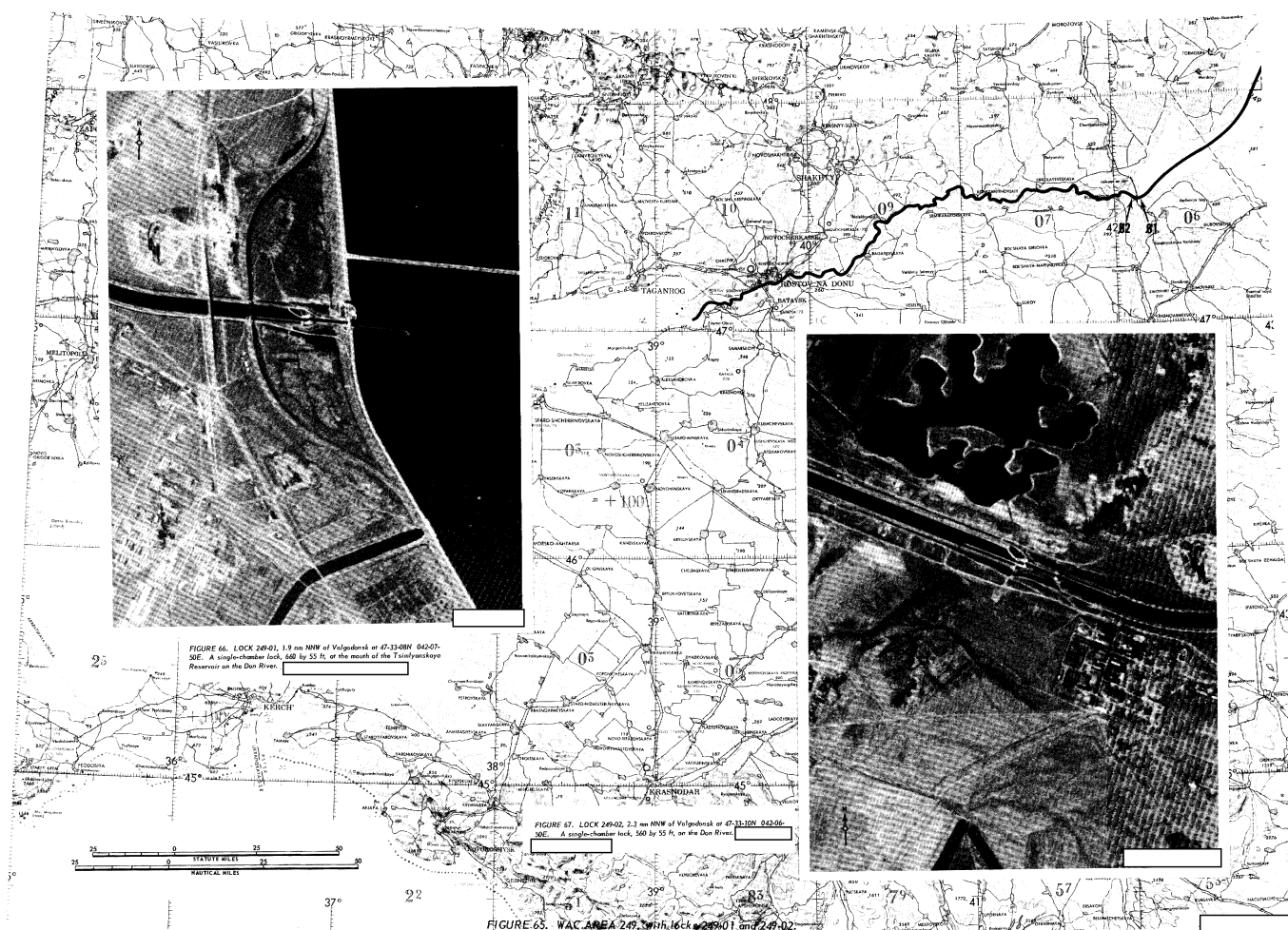
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